



In Building 815, 70-feet of German-made dewar bend from one room into another. With the dewar is Bill Kristiansen, one of the four technicians testing it.

Lab Tests German Dewar

From the people who gave us the Mercedes and the Leica comes a flexible dewar, the insulating envelope which houses electrical cables in superconducting power transmission.

Two 70-foot lengths of German dewar were delivered to the Lab last winter but it was not until October that hook-up to the refrigerator was completed and the dewar was first tested. This dewar is one of several designs being considered. A BNL dewar has already been tested and one being constructed by a commercial firm in Colorado will be tested early in 1975.

The three dewars represent a "first generation" of cryogenic envelopes, says Eric Forsyth, head of the Brookhaven Power Transmission Project. Information gained through testing them will be used in the design of a second generation dewar which will be the prototype for ones used in field experiments. Eventually a half-mile superconducting power transmission line will be built at BNL.

The dewar is one of the most expensive components of the transmission system. Therefore, the group is concentrating their efforts on optimizing performance tradeoffs versus cost. Through testing, the group is trying to determine how well the various dewar designs insulate against heat loss. Any heat that leaks through the dewar increases the power needed to run the refrigerators if the dewar were used in power transmission. Rather than using a real cable in the dewar, the tests are being conducted initially with a heater to simulate the heat given off by a cable.

The testing of the dewar begins with the long process of cooling it down from room temperature (23°C or 73°F) to superconducting temperatures (-263°C or -505°F), ten degrees above absolute zero. This takes approximately 24 hours. The cooling agent is helium in the form of a very cold gas, known as super critical helium. It is created by pumping room temperature helium through a helium refrigerator. To speed up the cool-down time liquid nitrogen is used to pre-cool the system. As helium is relatively expensive the warmed-up gas is returned to the compressor for re-use.

At least two people must remain with the dewar for the duration of the test, which lasts from several days to a week. Data readings are taken every half hour to measure such things as heat leaks and helium flow. The technicians involved are Bob Schmidt, Bill Kristiansen, Nick Houvener, and Gordon Stubbings. They are also the ones responsible for the installation of the dewar into Building 815 and for the construction of the refrigeration system. The

project engineers are Kurt Minati, Jack Jensen and John Dean, and they were assisted by Bob Zoller.

The three dewars that are being tested fall into two categories; flexible and rigid. The German dewar is of the flexible variety while the BNL dewar and the one being constructed commercially are rigid. There are pros and cons to both varieties and the purpose of the tests is to provide performance figures for each type.

The main advantage of the flexible dewar is that it can be rolled up and installed in longer lengths, thus reducing installation costs. Rigid dewars must be laid down in shorter lengths but they may perform better cryogenically and cost less to manufacture.

A third test on the German dewar began this week. Each test reveals ways of improving the dewar design as well as the refrigeration system. Forsyth predicts that by next spring actual cables which are now being fabricated commercially to BNL specifications will be installed into the dewar. Thus the scope will then be expanded to include simultaneous operation of the cable and the cryogenic system.

Official & Special Events

- Tuesday, December 10**
City of New York Highway Commissioners
AEC Physics and Chemistry Program Review - Berkner Hall (Dec. 10-12)
- Wednesday, December 11**
Navy Meeting - 7:30 p.m.,
Brookhaven Center
- Thursday, December 12**
ISA Advisory Committee Meeting -
Room B, Berkner Hall
- Friday, December 13**
High Energy Discussion Group Meeting

- Tuesday, December 17**
U.S. Military Academy Tour
- Wednesday, December 18**
Concert
Navy Meeting - 7:30 p.m.,
Brookhaven Center
Trustees Committee on BNL -
Room B, Berkner Hall
- Thursday, December 19**
L.I. Bone Metabolism Group Meeting

Cooking Exchange Christmas Party

The Cooking Exchange Christmas party will be held on Wednesday, December 11, between 5 and 7 o'clock at the Recreation Building. There will be a charge of \$1.00 per person and baby sitters will be provided. Ladies, please bring hors d'oeuvres.

Apprentices Remember Training Experiences

In 1969, Frank Strebel and Mario Geracitano, Stores Clerks in Supply and Material, took advantage of an opportunity which changed their whole life and made them what they are today - certified refrigeration and air-conditioning engineers.

It was in that year that the Personnel Office set up a pilot Apprenticeship Training Program which provided training in the electrician and refrigeration and air-conditioning trades. The program has since been expanded to include the machinist and carpentry trades. The program was designed to provide a combination of on-the-job training and formal education in these trades.

"The only regret I had when I entered the program was that it was not available to me when I first came to the Lab five years earlier," recalls Geracitano. "I think it is a wonderful program," says Strebel.

After four and a half years of training, both emerged with a certificate from the New York State Bureau of Apprenticeship Training, a diploma from the International Correspondence School (ICS), and a Journeyman certificate from the International Brotherhood of Electrical Workers.

Besides on-the-job training, as apprentices they were required to take a minimum of 576 hours of formal studies through ICS and the State University of New York at Farmingdale.

"It was a lot of work, but for the feeling of accomplishment afterwards, it was all worth it," says Strebel. "It takes a lot of discipline so you really have to want to do it," says Geracitano. He feels his children got something out of it too because they had a chance to see what someone can do if he applies himself.

What advice would they give anyone contemplating entering the program? "First I would tell them to take a good hard look at it to see if it is really something they

want and then, if they decide it is, I don't see how they could lose," says Geracitano. "It instills a great deal of confidence in you," he continued.

Geracitano claims that there is a practical side to his training. "I never have to call a maintenance man to fix anything in my house because I can do it myself now," he says.

As certified refrigeration and air-conditioning engineers, their work encompasses anything from small window air conditioners to huge cooling towers and complex central air-conditioning systems. They also handle refrigeration units which range in size from the small home variety to the 350-ton machines in the Linac. There are more than 15,600 tons of air-conditioning and refrigeration equipment at the Lab.

"The variety of machines at the Lab is amazing," says Strebel. They feel that the experience they accumulated training on so many different kinds of machines was invaluable. "We could not have gotten it anywhere else," they agree.

Remembering back to when he was first considering entering the program, Geracitano says he was quite hesitant, mainly because he had a fear of going back to school. He had been out of school for 12 years and was afraid that he would not succeed in the program. "After I spoke to the people involved in the program, I knew I had nothing to lose," he recalls.

Both men agree that their training would not have been possible without the cooperation of the engineers in the Refrigeration and Air Conditioning Department of Plant Engineering. The engineers supplied the apprentices with the on-the-job training they needed. "We are an end product of the people we worked with," claims Strebel.

The Personnel Office is currently accepting applications for six more apprentices. The deadline is today, Friday, Dec. 6.

Mario Geracitano (left) and Frank Strebel



Emergency Planning Luncheon



Associate Director Victor Bond invited seven Suffolk County officials, whose departments provide emergency services, to a luncheon at the Lab on Tuesday. Following lunch, Charles Meinhold, Head HP&S Division, and Bob Young, Associate Head HP&S, outlined the Laboratory's major emergency plan and recent changes in site security. Also discussed was the program at BNL to familiarize members of the Suffolk County Police Department's sixth precinct with the site layout in case they were called in on an emergency. Among those attending the meeting were: (left to right) Dr. Bond, Theodore A. Marx, Suffolk County Police Department; Captain William Schiltz, Sheriff's Department; Herbert Davids, Chief of Bureau of Environmental Health Services; Calvin Cunningham, Assistant Deputy County Executive; Dominick Chiuchiolo, Commanding Officer, Sixth Precinct; Major Norman Kelly, Director of Civil Defense; Ronald Buckingham, Director, Fire Safety Department and David Schweller, AEC.

BERA Nominating Committee

The BERA Executive Board has appointed a Nominating Committee to select the slate of candidates for the 1975 BERA election.

The committee members were chosen by the guidelines set forth in the Nominating Procedures of the BERA Policy Manual which states . . . "the Executive Board shall appoint a Nominating Committee of approximately nine employees who have actively participated in the recreation program. The Board shall attempt to have the committee representatives of as many Laboratory sub-divisions and recreation interests as possible . . ."

The committee members are:

- Michael Brooks - Reactor
- Helen Caisey - Directors Office
- Peter Fennelly - Carpenter Shop
- Seymour Fink - Applied Science
- Helena Keeley - Accelerator
- John McCafferty - Accelerator
- Richard Ruffing - Biology
- Virginia Sayre - Directors Office
- Arthur Scott - Applied Math

Each of the committee members is now considering possible candidates and will meet on Monday, December 16, to present their selections. Any employee wishing to make suggestions for candidates may do so by contacting any one of the above committee members.

OTA Director Visits Lab



Phillip Palmedo, DAS (left) briefs Emilio Daddario, Director of the Congressional Office of Technology Assessment (OTA), on the Laboratory's energy systems analysis work. Mr. Daddario took the time during his visit to BNL on Friday, November 22, to explain the status of the OTA.

The Cave Painters

Some 15,000,000 years ago, cavemen took time out from the desperate business of survival to paint strange and wonderful pictures in inaccessible corners of their dwellings.

On Sunday, December 8 on Channel 13, NOVA will give viewers a glimpse of the lifestyle of Cro-Magnon Man.

The film, shot on location in France's Dordogne Valley, shows American and French archaeologists piecing together the lifestyle of these Ice Age hunters by interpreting the meaning of their cave art.

"The Men Who Painted Caves" is a British Broadcasting Corporation production. If you miss it on Sunday, it will be aired on Channel 21 on Tuesday, December 10, at 8:30 p.m.

Christmas Chorus Rehearsal

All employees interested in joining the BERA Christmas Chorus are invited to come to rehearsals which are being held at Berkner Hall between 12:00 and 12:30. The date of the next session will be Tuesday, December 10.

The chorus will perform on site during the pre-Christmas season; no specific date has yet been set.

Co-Ed Volleyball

Teamwork, determination, and expertise were very much in evidence Monday night as Ken Sutter's Nut's and Bolts put the screws to Pat Oster's Spikers. A 23-21 score for the first game made it obvious to both the attackers and the attackees that they were in for a tough night. Sheer determination brought the victors from a ten point deficit to cap the final game. The Hero would have to be the great sportsmanship displayed by both teams and the Goat had a night off. — Bob Brown

Monteverdi's 1610 Vespers

The Long Island Symphonic Choral Association, conducted by Gregg Smith, will present Monteverdi's 1610 Vespers in the chapel at St. Charles Hospital, Port Jefferson, on Sunday, December 15, at 8:30 p.m. Come listen to music that filled the vastness of St. Mark's Cathedral in Venice. Adults, \$3.00; students, \$1.50. A musical bargain!

Arrivals & Departures

Arrivals	
Roger C. Bailey	Plant Engr.
Lillian Farrington	Applied Math.
Mark K. Goldstein	Applied Science
Frederick B. Growcock	Applied Science
Francis J. Haughey	Hlth. Phys. & Safety
Hans Hirsiger	Medical
Linda Scotti	Biology
Gilbert B. Spira	Applied Science
Departures	
Paul W. Alley	Physics
John W. Dean	Mech. Engrg.
George W. Radlhammer	Physics

Rifle and Pistol Club

All members are urged to attend the December 11, 1974 meeting at Building 134C at 5:15 p.m. We will elect new officers for the coming year at this important meeting.

As of 11/26/74 our rifle team has won 1 and lost 1 match, and the pistol team has won its first match. By the time of the December 11th meeting, each team will have competed in a total of 3 matches, and both teams would like more active participants.

If you have been reluctant to compete for fear of hurting the team record, you needn't worry about it because only the top 4 scores count in the standings. Few other team sports permit novices to enjoy the experience of formal competition without penalty to their fellow team members; so why not improve your skill, the "regulars" will have no cause to resent you for it.

Slo-Break Basketball

The new season continued in full swing with double headers being played on November 14th and the 21st. In the first game of the 14th the Spuds unveiled a secret weapon - a 6'4" center named Moncton. Displaying a fine jump shot, Moncton threw in 20 points to lead the Spuds to a solid 71-57 victory over the Persuaders. The regular Spud scoring trio of Samuelson, Nordstrom and McKeever contributed 43 points to the winners while Jim Garrison's 18 was high for the Persuaders.

In the second game the Roga triumphed 53-44 over the Condors led by their big center Ed Brown, who scored 18 and dominated the boards. The game was close for three quarters with Walt Brooks, who netted 12 for the Condors, making a valiant effort to contain Brown, but the Condor defense finally weakened.

On the 21st the first overtime game of the season was played between the Roga and the Persuaders with the Persuaders pulling out a hairline 58-57 victory. The Persuaders attack was well balanced with four men: Bob Casey, Jim Vaughn, Bob Rowley and Jim Garrison scoring 15, 14, 13 and 10 points, respectively. The Persuaders had to play without their jack-in-the-box center, Greg Donaldson, so Roga center Ed Brown was able to rampage under the basket and tallied 25.

In the second game of the 21st, the Spuds were forced to field a lilliputian team (neither Moncton nor Samuelson) and the Condors raced to a 27-8 halftime lead, then coasted to their first victory of the season, 56-52. Bob Vignato's deadly outside shooting shattered the Spud zone as he racked up 20 points, while Nordstrom's 18 and McKeever's 17 paced the Spuds.

Bowling News

Grace Fales

Red League
High scores for 11/19: J. Fontana 201, R. Nelson 212, C. Gardner 232, D. Lingg 205/207, K. Asselta 200, J. Follenius 208, T. Prach 204, and R. Wilson 201.

Green League
200's for 11/19: B. Belligan 201, C. Bohnenblusch 226, J. Sheehan 205, S. Kiss 212, W. Kollmer 206, and A. Pinelli 236.
11/26: A nice hand for S. Kiss for his rare conversion of the 4-6 split to secure a 212 game. Congratulations to E. Meier for his 254/212/624 series to earn his Club Awards. (Yes, that's scratch!) The Sandbaggers defeated the Designers (8-3) to increase their first place lead to 14 points. The Sandbaggers fired a 3112 team series to the Designers 2992. Other 200's for the night were R. Meier 203, M. Bull 203, G. Guydish 208, H. Marshall 216, and W. Kollmer 201.

Pink League
11/19: Congratulations to Helen Keeley, who won the "bird." What time did you say dinner was? High games for the night: B. Jellett 200, H. Caisey 189, and P. Oster 183.

Black and Blue League
High games for 11/20: Don Schug 206, Rosali Piccione 173/175, Ellie Murgatroyd 173, Renee Flack 161. The turkey was won by Betty Jellett. High gross game pots went to Don Schug 239 and Ellen Jacobson 216.

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BNL Camping Club

The monthly meeting of the BNL camping club was held at the Rec Hall on November 21. Plans were made for the club's Christmas Party, to be held on December 19 at 7:00 p.m. at the Rec Hall. All members and guests are being asked to bring a covered dish. Those wishing to attend should contact Margaret Fennelly concerning the arrangements.

The meeting was followed by refreshments and a very interesting film concerning the history of railroading.

Selected Reading

- Ind. Res. 16, November 1974
Can science be irresponsible? C.S. Wu. 31
- Nuclear energy - a world view. Remarks by Commissioner W.A. Anders, U.S. Atomic Energy Commission, at the Annual Awards Dinner of the American Geographical Society, New York, N.Y., November 14, 1974. Press Release No. S-19-74.

Cafeteria Menu
Week Ending December 13, 1974

Monday, December 9	
Cream of Tomato	
Baked Macaroni & 1 Veg.	1.00
Pork Chop & 1 Veg.	1.15
Tuesday, December 10	
Vegetable Beef	
Meat Loaf & 1 Veg.	1.05
Western Omelet & 1 Veg.	.95
Wednesday, December 11	
Chicken and Rice	
Special - Davy Jones Fish Fry	1.25
Breast of Lamb & 1 Veg.	1.15
Thursday, December 12	
Navy Bean Soup	
Beef Hash & 1 Veg.	1.00
Fried Chicken & 1 Veg.	1.05
Friday, December 13	
Manhattan Clam Chowder	
Fish & Chips	1.00
Roast Sirloin of Beef & 1 Veg.	1.20

Classified Advertisements

Placement Notices

Each week the Personnel Office lists personnel placement requisitions, currently being processed. The purpose of these listings is, first, to give notice of all non-scientific staff positions being filled and, second, to give employees an opportunity to request consideration for themselves through the Personnel Office. In filling vacancies, the Laboratory's objective is to give first consideration to present employees, as follows: employees within the immediate group having the vacancy, employees within the department or division, employees within the Laboratory as a whole.

For further information regarding a placement notice, or to request consideration for an available position, contact Supervisor, Personnel Placement & Development, extension 2874 or 2882.

- 49. SECRETARY - Directors Office.
- 50. CUSTODIAN - Plant Engineering Division.
- 51. OFFICE SERVICES ASSISTANT - Temporary position. Fiscal Division.
- 52. OFFICE SERVICES ASSISTANT - Part-time position. Reactor Division.
- 53. TECHNICIAN - Temporary position. Department of Applied Science.

Autos & Auto Supplies

- 72 HONDA CB350 MOTORCYCLE - Low mileage, excel cond, extras, kept in garage. \$700. Ext. 4113, 929-6157 eves.
- 69 TOYOTA CORONA - Blue, recent valve job & rings, Mr. Economy himself. 286-0694 after 5.
- 69 CHEVY KINGSWOOD ESTATE - Ps/pb, air cond. Asking \$795. 727-1329.
- 68 TOYOTA CORONA - 4 dr, auto trans, 1970 eng, excel throughout. \$950. Sautter, 924-3338.
- 70 BUICK ELECTRA CONV - Excel cond, ps/pb/pw, pwr seats, a real luxury car, air cond. \$2075. Carsten, Ext. 3593.
- 55 T-BIRD - Classic 2-seater, auto trans, 2 tops. 78,000 mi. \$3000. Steve, Ext. 3822, 929-6527.
- 65 OLDS F-85 - Auto trans, ps, V8, radio, good running cond. \$200. Al, Ext. 4478.

TIAA-CREF: for Richer, for Poorer, Married to the Market . . .

The following is the full text of an article entitled "TIAA-CREF: For Richer, For Poorer, Married to the Market," written by Mr. John Walsh, which was published in *Science*, November 8, 1974, volume 186, pages 513-515. Copyright 1974 by the American Association for the Advancement of Science.

For the TIAA-CREF* participant counting on the college pension plan to provide a margin of comfort in retirement, a reasonable reaction to the recent enactment of a federal pension reform law is a feeling of being a little ahead of the game. Major provisions of the law designed to guarantee an individual's rights to pension benefits he has earned are already embodied in TIAA-CREF programs.

Other developments, however, are a lot less reassuring. Inflation in recent years has outrun the growth of TIAA-CREF investments, and in the last 2 years the dollar value of CREF annuity units, on which CREF retirement income is based, has declined by a quarter.

The hypothetically average TIAA-CREF policyholder is probably vague on details of the pension plan and on how the current travail of the investment market affects the plan. But the events of the past 2 or 3 years are dramatic enough to justify his taking a keener interest.

TIAA and CREF are separate programs based on different kinds of investments and intended to complement each other. TIAA concentrates on investments which bring a fixed return — bonds, mortgages, real estate. The high interest rates of recent years have had a relatively favorable effect on TIAA payouts. The CREF portfolio, on the other hand, consists almost entirely of common stocks. The rationale is that CREF will provide a retiree with an income tied to the performance of a diversified portfolio of securities and that the long-term trend of the market will be favorable. It means accepting the downs as well as the ups of the market, and CREF is sharing its current unpleasant experience with other pension funds and mutual funds. (The average policyholder splits his contributions between the two programs on the theory that TIAA and CREF have compensating strengths and weaknesses under differing market conditions.)

TIAA and CREF, therefore, are doing what they were designed to do. This, of course, is not much consolation to retired people watching inflation erode the buying power of the dollar while their income from CREF actually shrinks.

The TIAA and CREF investment policies that by and large have worked well for two decades are, temporarily at least, limping in an economy beset by high rates of inflation and unemployment, a depressed stock market, and major uncertainties about energy and food prospects. The question for TIAA-CREF participants, put simply, is whether the strategy governing TIAA-CREF in the past will prove efficacious in the conditions now emerging.

TIAA, established in 1918, is a mutation from a free pension plan for college teachers created in 1905 through a \$10 million benefaction from Andrew Carnegie. With the expansion of higher education, it became clear that private philanthropy could not sustain the program, and a study made in conjunction with leaders in education produced the design of a private pension plan financed through contributions from faculty members and other employees of colleges and universities and from their institutions.

The TIAA participant holds a contract directly with TIAA which makes it possible for him to move from one institution to another and even to leave the profession without losing rights to benefits he has accumulated. The program is "fully-funded" in the sense that benefits to him are based on the flow of contributions over the participant's career and on the investment experience of the program. These features of "vesting," "portability," and avoidance of unfunded obligations anticipated the new federal pension reform law. The compromise measure enacted into law includes fairly modest vesting and funding provisions, but lacks effective portability requirements of the sort incorporated in TIAA and CREF.

When a TIAA participant retires, an annuity is purchased in his behalf which guarantees a fixed dollar income plus dividends

that are decided on annually by the TIAA trustees. This year the return to a retiree on his TIAA accumulation was 7½ percent. (Total assets of TIAA were about \$3.4 billion at the end of 1973 compared to \$3.0 billion at the end of 1972.)

CREF is a newer program which was itself, somewhat ironically, a product of inflation. During the 1930's depression, TIAA retirees fared reasonably well because prices were low and stable. After World War II, however, rising prices put pressure on people living on fixed incomes. To come to terms with postwar conditions, the concept of a "variable annuity" was developed and became the basis of the CREF program, established in 1952. The study which provided the blueprint for CREF was directed by William C. Greenough, now chairman of TIAA-CREF, and a major influence in the organization over the years.

When a CREF participant retires, his "accumulation units" are converted to a fixed number of "annuity units" by a formula based principally on his record of contributions, age at time of retirement, sex, and retirement plan chosen. The dollar value of an annuity unit varies for any year according to dividends and changes in the market value of total CREF holdings.*

The market value of CREF investments fell by almost \$400 million to \$2.6 billion between the end of 1973 and the end of June. The value of annuity units which the annuitant receives has fallen from \$35.75 in 1972 to \$26.21 this year. Unless the market recovers strongly before next spring, when the annuity unit value is set, another cut appears likely.

The decline in two consecutive years, which amounts to a loss of more than 26 percent in CREF income to the retiree, is obviously a serious one. It is worth noting, however, that the \$35.74 figure was the highest since the annuity unit value was first established at \$10 in 1952. The value set for 1970 was \$28.91 and, for 1971, was \$30.64.

Since CREF managers are committed by terms of the program to buying securities in good times and bad and since premiums amounting to about \$1 million pour in on every business day, CREF is always "in the market." This means that CREF has been buying stocks at the recent low prices. Some other major institutional investors have virtually dropped out of the market, which has apparently driven prices down further. If the market rebounds vigorously, CREF will have bought itself some real bargains; if not, not.

By the same token, it is advantageous for the individual participant in CREF if stock prices are low during his "payin" period and high during his "payout" retirement years. Many retirees now find themselves in reverse circumstances.

TIAA-CREF, which also offers insurance and major medical programs, thoroughly dominates its field. Faculty in 80 to 90 percent of private colleges and universities participate, and TIAA-CREF is now offered as an option in about 40 percent of public institutions. In all, some 2700 non-profit organizations, including schools, private foundations, and research institutions are signed up. About 400,000 individuals belong.

Despite this wide acceptance, TIAA-CREF is not without its critics and questioners. The most extensive recent critique of the program was carried out by the American Association of University Professors (AAUP). This effort seems to have been prompted primarily by an article in the autumn 1971 *AAUP Bulletin* titled "A reevaluation of CREF," which questioned CREF's investment performance and by a letter in *Science* (11 February 1972) which was primarily critical of CREF payout practices. At the AAUP meeting in the spring of 1972, the membership voted to form a subcommittee to take a critical look at TIAA-CREF management and operations. This subcommittee, made up of four university economists and an AAUP staff member with a background in mathematics returned a generally favorable verdict in a report which appeared in the summer 1973 *Bulletin*. The subcommittee's evaluation of the investment performance of the two programs is indicated in the following excerpt from the report.

The TIAA portfolio has generally reported higher yields than the other insurance companies, the result of aggressive financial management aided by the predictable character of in-

payments and out-payments inherent in most private pension plans and in the TIAA annuity contracts with no cash or loan values . . . TIAA investment results have led to yields that support a current interest rate of 7½ percent on accumulations attributable to premiums paid since March 1, 1969 and 5¼ percent on premiums paid before that date. (During the payout period current interest is 7½ percent.)

CREF's assets are wholly invested in common stocks and thus its investment performance can be directly compared with that of general unmanaged portfolios represented by market averages, and with open-end mutual funds. In the case of TIAA, risk considerations did not explicitly enter the evaluation of performance; however, it is important that rates of return be interpreted in terms of the level of risk when discussing the CREF portfolio. . . . It can be seen that CREF is a slightly higher risk portfolio than the hypothetical S&P 500 [Standard and Poor's 500 Stock Average], without an accompanying higher return. The Subcommittee's conclusion is that CREF has performed at about the same level as the market because the observed differences in return . . . though noticeable, are not statistically significant.

It also should be remarked that any actual fund such as CREF bears the costs of commissions on sales and purchases, which the hypothetical S&P 500 does not. In comparison with actual open-end mutual funds generally CREF has performed favorably, being at about the middle of a representative list of funds with assets of more than \$500,000,000. . . .

The report did make some specific criticisms of TIAA-CREF, most aimed at what the subcommittee called rigidities in the system. The subcommittee said it had found discontent among participants over "paternalistic restrictions" in a program which for many is not voluntary and which offers no loan features or lump-sum payment. The report applauds TIAA-CREF action providing an option of receiving a "retirement transition benefit" of up to 10 percent of a participant's accumulation at time of retirement.

On the issue of paternalism, TIAA-CREF officials and trustees appear willing to make adjustments but not to give participants major discretionary latitude with funds. The rationale seems to be rooted in a long-standing view that TIAA-CREF was created to meet the responsibility of higher education institutions to provide for the retirement of their faculty and employees and that the institutions would not be willing to contribute to the extent they do if it were not certain the funds would be used for that purpose.

The AAUP subcommittee also pressed for stronger policyholder influence on the TIAA and CREF governing boards. Whether in direct response to these suggestions or not, some "democratization" is under way, although not to the degree urged by the AAUP group. There have been four trustees directly elected by policyholders on each of the 20-member boards. In the future, another 4 members of each board are to be named from among those who have served as policyholder-elected representatives. An argument used against open election of trustees is the need for members with financial expertise.

One policy issue which will apparently be settled in the courts is the matter of differentials in annual retirement benefits for men and women. Because women live longer on the average than men, men collect higher monthly retirement benefits than women having the same employment and payin records. Women, on the other hand, collect larger lifetime benefits, on the average. The current TIAA-CREF policy is based on an actuarial "mortality differential" followed in most pension plans. Federal regulations are now in conflict over whether monthly benefits should be equal for both sexes, and the issue is before the courts.

Conventional industry ratings of TIAA-CREF seem to have been generally favorable. A 1974 analysis of TIAA by the A.M. Best Company which bills itself as "Analysts of the Insurance Industry since 1899," says "The Association has most substantial backing and, with due regard to the interests of the policyholders, has long been most ably managed." The study recommends the company to policyholders.

Not all evaluations are so complimentary. CREF made "The Bottom Line," the financial column of *New York* magazine for 14 October. Under a head "A Cruel, Costly Lesson," the column notes that the CREF portfolio has shown a paper loss of \$800 million in the last 9 months and goes on to question the CREF investment strategy, although at the same time noting that

Greenough "is virtually locked into the very investment strategy that's playing havoc with C.R.E.F.'s assets." As a parting shot, using the sort of detail dear to *New York*, the column quotes two partners in different brokerage houses who "griped about the lavish lunches and dinners that, they said, some C.R.E.F. personnel practically insist upon to do business with the fund.

For what it's worth, the corporate lifestyle at TIAA-CREF is likely to strike the visitor as neither austere nor opulent. Judging from such things as office decor and the fare in the executive dining room, the comfort level is about that of a private foundation, perhaps a shade more Spartan. TIAA-CREF, with 1300 employees, occupies an office building at 730 Third Avenue — middle-aged by Manhattan standards — which it now owns. As with other New York-based operations, a move out of town has been considered but in this case rejected.

TIAA-CREF trustees with university backgrounds say their impression is that executive salaries and perquisites seem to be in line for an organization which ranks among the top ten insurance companies in the country. It is true, at the same time, that neither the AAUP subcommittee or other outsiders have looked critically at the TIAA-CREF salary structure, or at employment and promotion practices.

The ultimate criterion, however, should be the experience of TIAA-CREF retirees. Because of the multiplicity of institutional arrangements and career patterns it is difficult to construct a profile of the typical TIAA-CREF annuitant among the roughly 50,000 now drawing benefits. A general idea can be gained, however, from a recently completed study of TIAA-CREF annuitants published under the title *My Purpose Holds*. The study was based on 1502 responses to questionnaires from 2269 annuitants over age 60 on a random sample. They were asked not only for financial information but for other comments on retirement experience.

Of those who replied, 55 percent reported they lived "well" or "very well" and another 36 percent said they lived "adequately." About 25 percent indicated that their standard of living was lower than before retirement.

It is important to note that, overall, the retirees reported that two-thirds of their income came from their annuities and Social Security while a quarter was derived from investments and 10 percent from post-retirement employment. And the comments on the questionnaires stressed that investments outside the pension plan were particularly important in retirement finances.

Only about 4 percent of the annuitants reported incomes of less than \$250 a month and another 18 percent under 500. A third had incomes of between \$500 and \$1000 a month and another third between \$1000 and \$2000, while 10 percent were in the over-\$2000-a-month bracket.

Every TIAA-CREF participant gets the annual blue and yellow forms which carry a record of his accumulations and projected retirement income (although without any inflation factor figured in) so that he can estimate where he stands.

A major virtue of TIAA-CREF from which the policyholder profits is that it is a nonprofit organization with no shareholders in the ordinary sense. Operating costs also are relatively low, partly because there are no agents or national network. TIAA-CREF, however, depends exclusively on the premiums paid by individuals and institutions and on the vicissitudes of the investment market. In a period like the present one, TIAA-CREF annuitants cannot look to their pension plan for cost-of-living increases. Retirees under the federal Civil Service system have annuities tied to the consumer price index, and many corporations have pension plans that are responsive to inflation. But TIAA-CREF retirees cannot call on the U.S. Treasury or corporate coffers; colleges and universities are in no shape these days to offer ex post facto help to retirees.

All of this emphasizes the central fact that TIAA-CREF policyholders should hope fervently that investment professionals are right in their Newtonian faith about the market that what goes down must come up.

— John Walsh

*An explanation of how annuity unit values are set is provided in a pamphlet "CREF Units at Work" available from CREF, 730 Third Avenue, New York, N.Y. 10017.

*Teachers Insurance and Annuity Association and College Retirement Equities Fund.

69 CADILLAC FLEETWOOD BROUGHAM - Fully equipped, climate control. \$1200 or best offer. R. Cohen, Ext. 3488, 473-8717 eves.

72 FORD LTD - All pwr, fully equipped. \$2100. 325-0718 after 7.

71 BUICK CUSTOM SKYLARK - Mechanic's special, needs some work, compl power. \$975. Ext. 2882, 473-9121 after 6:30.

63 FORD FAIRLANE - Good running cond, heater works. \$100. 281-3377 after 6.

67 CADILLAC COUPE DE VILLE - Int & tires very good, needs body work. R. Nelson, Ext. 4417, 744-8949.

2-6.50x13 TIRES - Mounted on English sports car rims, both will pass insp. \$5/pr. Harry, Ext. 3783.

70 GREMLIN - Std trans, good running cond. \$750 or best offer. 281-3977.

BUICK LE SABRE - 4 dr sedan, sm V8, auto trans, excel all around, good on gas. \$995. 286-9260 eves.

66 OLDS 442 CONV - Ps/pb/pw, r/h, auto trans, posi, dependable & economical, many new parts. \$350. Joan, Ext. 4393, 289-3804 after 6.

2-5.60x15 TIRES - On VW 4-lug rims. \$15. Don, Ext. 4576, 281-6160.

74 VEGA - Hatchback, low mileage, runs well, used very little, must sell-moving. 588-4703 after 5.

70 FIAT 124 BLUE SPORT COUPE - Std shift, 58,000 mi, A-1 cond. \$1400. Swan, 475-5266.

7.75x15 RECAPS - New. Ken, 289-8212.

USED TIRES & RECAPS - Most sizes. Ken, 289-8212 eves.

63 MERCURY COMET - 2 dr, 6 cyl, auto trans, very good cond. 472-1871.

J78-15 TIRE - Good cond. \$12. John, Ext. 2242/4143. 1939 FORD - 2 dr, w/extras. \$1000. Call for detailed information. Howie, Ext. 3531, 727-4363.

67 CADILLAC SEDAN DE VILLE - Excel cond, full pwr, very good tires. \$1000. 281-8882.

PRE-HOLIDAY SALE - VW Dune Buggy, blue sparkle fiberglass, 1967 eng, all parts, new pipes, needs final assembly. \$385. 698-8371 after 7.

71 VEGA HATCHBACK - 4 spd, 20+ mpg, runs well, radio, new brakes & exhaust, 4 steel belted w/w+2 snows/extra rims. \$1000. Ext. 3752, 744-9699.

WHEEL RIMS - 2-14" Chevy, 1-15" Ford, good cond. \$5 ea. Ext. 3601.

71 FORD 3/4 TON PICKUP - Auto trans, ps/pb. \$1975. 929-4487.

SNOW TIRES - C78-14, used 1 winter. \$18/pr. J. Bussiere, Ext. 3501, 924-3303.

71 TOYOTA STATION WAGON - Low mileage, very good cond. \$1250. Pat, Ext. 3376, 281-1364.

1947 WILLYS JEEP - Excel in & out, 4 w/d, hubs, compl rebuilt, many extras. 286-0694 after 5.

69 FORD TORINO - 2 dr htdp, vinyl top, excel cond, ps, new brakes, auto trans. \$875. Ext. 3205.

50 CC JAWA MOTORCYCLE - Like new, 200 mi. \$185. John, Ext. 3354.

Boats & Marine Supplies

19' NEPTUNE TRAVELER - All fiberglass, inboard/outboard, 210 hp Buick V8, w/head, good on gas. Asking \$2200. 281-5692.

23' LUHRS - 109 hp Gray Marine, sleeps 2, head, sink, extras, must sell, needs end of season paint, very seaworthy. Betty, Ext. 3725.

16' PEN YAN - Lapped sides, 40 hp Johnson w/controls & trailer, very good. Howie, Ext. 3531, 727-4363.

Miscellaneous

OSCILLOSCOPE - 5" screen, Dumont 208-B, old but good. Asking \$30. Don, Ext. 4576, 281-6160.

OLD & ANTIQUE FURN - Rugs, compl bedrm set, contents of estate, all good cond. Ron, Ext. 4652, 289-1003.

ALUM STORM DOOR - Std 36 1/2 x 80 1/2 w/return. \$20. Ext. 3121, 744-5261.

AUTO PHONE DIALER - "Name Caller," new cond. Cost \$70, sell \$15. Saxon, Ext. 3435.

POOL TABLE - 8' w/all access, \$115; ping pong table, \$25. 924-6972.

MOD BATH TUB - Full size, pink. \$15. 473-9121 after 6:30.

ENCYCLOPEDIA BRITANNICA - Brand new, still in unopened orig cartons, 30 vols, less than 1/2 price. \$250. Ext. 2543.

DIVING EQUIPMENT - Tank, regulator, suit, many extras. Worth \$275, \$190 buys all. Tommy, 281-4695.

SHINGLES - 10 square of lt green asbestos shingles, 4 square of white. \$15/square. 281-0423.

PINE CABINET - 3'x6', 4 shelves, lg drawer at bottom, \$25; maple bar & coffee table, \$60; wood broom cabinet, 21"x72", \$8. 475-4199.

INFANT DRESSING TABLE - Walnut brown wicker w/4 15x15x4 bins & safety strap, folds for storage, excel. \$20. Saxon, Ext. 3435.

BABY CARRIAGE - "Perego" coach, converts to car crib, navy blue, white lace, new cond. \$45. Saxon, Ext. 3435.

2 SETS "N" GAUGE TRAINS - Extra track & access, excel Christmas gift. Pd over \$65, used only once, sell for \$40. Harry, Ext. 3783.

ELEC WATER HEATER - Rheem glass lined, 40 gal, like new. \$15. 286-8805 eves.

DIN RM TABLE - 4 chairs, tablecloths, matching china closet, blonde finish, contemporary, good cond, reasonable. 363-8919.

COCKTAIL TABLE - Mediterranean styled w/2 matching end tables. Orig \$279+, now \$155. 286-8517 after 5:30.

MEN'S HIP BOOTS - Size 8, excel cond. \$8. Ext. 4602, 475-9364 after 6.

2 STEREO SPKRS - 8 ohm, 3"x5" in walnut enclosures. \$10/both. Ext. 4602, 475-9364 after 6.

SOFA BED - W/2 matching chairs, good cond, \$75; blue chest of drawers & metal high chair, make offer. 473-8011.

TORO SNO-PUP 14" SNOW THROWER - Rebuilt carb, excel cond. Best offer over \$50. W.S. Hillman, Ext. 3404, 472-1397.

SALTON BUN WARMER - Unused, orig pkg. \$10. W.S. Hillman, Ext. 3404, 472-1397.

SUZUKI TRAIL BIKE - 50cc compl w/trail tire & 2 new street tires, good cond. \$125. Marie, Ext. 3857, 878-2603 after 5.

PANASONIC CASSETTE ADAPTER - For 8 track player, model CJ-980U, never used. New \$40, sell for \$20. Don, Ext. 4576, 281-6160.

TELESCOPE - For serious astronomer, Mizar Model H-100 Reflector w/extras. Will sell for \$150 or best offer. Don, Ext. 4576, 281-6160.

GUITAR - Yamaha Model FG-230, 12 string guitar w/case. Orig \$225, will sell \$150. Don, Ext. 4576, 281-6160.

PIANO - Fischer spinet, mahog. Asking \$250. Bob, Ext. 4778.

2 DOG COLLARS - 21" long, never used. \$2 ea. Joyce, Ext. 4060.

MAPLE TELEPHONE TABLE - Excel cond. \$10. JU4-6019 after 4.

CHRISTMAS SCOTCH PINE TREE 4' - Tree lights, candles, gift boxes, incidentals; little girl's white ice skates. 286-0376.

MAN'S WOOL TOPCOAT - Zippered lining, almost new, gray; woman's blk cashmere clutch coat, almost new. 286-1376.

SEWING MACHINE - In walnut cabinet, straight stitch, self winding bobbin, forward & reverse lever. \$40. JU4-6019 after 4.

BABY ITEMS - Conv stroll-o-chair, high chair, stroller, carriage, bassinette, more, all excel cond. 289-0532 after 6.

ELEC H/W HEATER - 82 gal fiberglass lined, 220v, brand new, never used. 878-1589.

PECAN DIN RM SET - Octagonal pedestal table w/2-24" leaves, 4 cane-back chairs; lighted china closet. \$650. Barbara, Ext. 2902, 588-5537.

MEDIT/SPANISH BEDRM SET - Dbl bed, triple dresser, armoire, 2 night tables, 2 mirrors. \$750. Barbara, Ext. 2902, 588-5537.

COLOR TV - 2 yrs old, 15" picture, \$200; Sony FM radio, 5 channel, preset. \$25. Barbara, Ext. 2902, 588-5537.

GE ELEC RANGE - Apt size, 4 burners & oven, \$50; Playboy - more than 3 yrs back issues, \$8 takes all. Barbara, Ext. 2902, 588-5537.

GE REFRIG - Sm freezer section, good cond. \$35. Tony, 288-9077. Ext. 4278.

TAPE RECORDER/PLAYER SYSTEM - Akai Model M-10, 2 microphones, 25-7" reels w/tape, like new. Howie, Ext. 3531, 727-4363.

2 WALL LIGHT FIXTURES - Adjustable, ea has 2, cone shaped, metal, gold, modern. \$15/pr. Ext. 4144.

ANDERSON SLIDING WINDOW - New 31"x64", \$40; alum storm door, 36", \$20. E. Bihn, LT9-2184.

BUFFET - Blk/white formica top, \$35; child's chest, white drawers, walnut sides, \$25. E. Bihn, LT9-2184.

ICE SKATES - Girl's size 4, good cond. \$5. John, Ext. 3386.

SCOTTS 18" GARDEN SPREADER - \$5. 929-0650.

FREE - 4 pr ski boots, 1 leather size 9, 3 rubber children's boots, asst sizes; 2 pr wooden skis. M. McKeown, 286-1169.

TURFMASTER - 3 1/2 hp rototiller, made by Huffy, like new. \$175. Ext. 3148, 325-1961.

CAB-OVER PICKUP CAMPER 8' - Sleeps 4, extras incl tie down turn buckles. \$650, open for trades, camping gear, etc. L. Redmond, Ext. 3272, 878-0968 after 5.

DIN RM TABLE - Blonde, formica top, blk metal legs, 3 1/2'x5', seats 10 w/2-12" leaves, good cond, avail 12/27. \$25. 941-4562.

CRIB - White w/blue/pink picture on headboard, springs, matt, bumper guards, seldom used, good cond, avail 12/27. \$12. 941-4562.

RABBITS - Fancy Dutch show rabbits, real nice, last chance, next step hassenpfeffer. F. Paffrath, Ext. 4407, 864-1214 after 6.

BOY'S ICE SKATES - Size 6, 2 pr. \$8/pr. R. Holroyd, Ext. 4329.

BARBIE DOLLS - \$1 ea. Laurie, 744-5096 after 4.

DOLLS - Handmade Raggedy Ann & Andy, 15", 18", 20". 475-2765 after 6.

CHILDREN'S OVERSHOES - Sizes 1 & 2, 1 pr ea. \$2 ea. 286-3742.

PFUFF SEWING MACHINE - Elec, backward-forward stitch, w/carrying case. \$35. Jay, Ext. 3001, leave message.

REFRIG - 16 cu ft Philco, very good cond, freezer on top. \$140. Pat, Ext. 3376, 281-1364.

ELEC GUITAR - W/5 watt amp (Lafayette), \$25; chord organ, like new, cost \$70, sell \$25; crib, \$20. Ron, Ext. 4310.

STAPLE GUN - Sears 2 power w/7 boxes staples, old but good. \$7. John, Ext. 4143/2242.

3' STANDING DOLL - Metal tree stand for 3' tree, 4' scotch pine tree, used 3 times; old typewriter, for parts. 286-0376.

OLD WINGED BACK LOVE SEAT - Down filled; 2 maple finish hardwood chair frames w/o pillows. 286-2287.

ICE SKATES - Like new, size 12. \$3. 286-3742.

GIANNINI GUITAR - W/case, strap & instruction bk. \$100. J. Zahra, Ext. 4634/4667.

CAMERA - New, Olympus Pen EE-3, F 3.5. Ext. 3619.

CHILD'S TYPEWRITER - Marx 200, like new, \$10; child's Touch & Sew sewing machine by Singer, w/AC adapter, like new, \$10; child's phonograph by Westinghouse, very good cond, needs needle, \$8. 744-2766.

HEATHKIT 80 WATT STEREO AMP - AA-121, preamp AA-141-A, Garrard 3 spd changer RC-80, Webster 78 rpm changer, Hallicrafter S-47 rcvr. Best offers. 941-4562.

GE VACUUM CLEANER - Almost new, canister type, all attachments, \$30; Spanish access, shelves, gates, sconces, conquistador, must see. Barbara, Ext. 2902, 588-5537.

GROLIERS WORLDS GREAT CLASSICS - 50 matched gilt edged, custom bound vols in own bookcase. Orig \$500, now \$350 or best offer. Barbara, Ext. 2902, 588-5537.

SWIVEL ROCKER - Gold vinyl, new cost \$80, will sell for \$25; bunk beds, \$20; chest of drawers, \$15. 286-3540.

JUNIOR & GIRL'S ROBES - Quilted & fleece, 1/2 retail prices. \$5.75-\$9.25. 289-8182.

PHONOGRAPH - 3 spd, portable. Ext. 2582.

SKATES - Men's Canadian Flyer hockey skates, never used, size 5. \$14 new, now \$10. B. Espensen, Ext. 3992.

MEDIEVAL CASTLE - Drawbridge, handmade in wood, 29" square, 12" high. \$60. 744-5448.

DIN RM SET - Mod walnut 40x60 table w/18" leaf & 4 chairs, 50x18 buffet. \$175. Kinsey, Ext. 2902, 286-0407.

MAN'S COAT - Blk Borg Alaska, size 44, worn once, orig \$130, asking \$95. R. Williams, Ext. 4259/4210, 286-0893.

WESTINGHOUSE REFRIG - Frost-free. \$35. Steve, Ext. 3822, 929-6527.

21" MAGNAVOX B/W CONSOLE TV - Good cond, \$25; maple corner table, 36"x36", \$25. Ext. 3065, 475-1157.

SKIIS - Cable binding, \$5; ladies' ski boots, 7 1/2, \$18. Jack, Ext. 2485.

STEREO RECEIVER - W/BSR turntable, excel cond. \$100. Call Mon., Ext. 2053.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Sale

SALE/RENT - Yaphank, 2-3 bedrm ranch, low taxes, bsmt, att garage, near Country Club & Lab. 924-3369.

PATCHOGUE VILLAGE - 2 family, 4 1/2 up, 4 1/2 down, new w/w carpet up. 289-3427 after 6.

YAPHANK - Massive 7 rm ranch, 1/2 acre on quiet-safe cul-de-sac, swimming pool, 28x60 bsmt, 2-car garage, many extras. 924-3198.

MIDDLE ISLAND - 3 bedrm custom colonial, 2 baths, 2 car garage, fireplace, fam rm, 2.7 acres wooded, will accept mort, will split prop. \$55,000/\$70,000. Ext. 4278.

For Rent

MIDDLE ISLAND - 3 bedrm ranch, fireplace, lg fam rm, fin bsmt, 1/2 acre. \$400/mo plus util. 924-6972.

NEW 2 BEDRM APT - 5 min from Lab, no children. \$250/mo, all util incl. 924-4250 after 6.

Wanted

BABYSITTER - 3 days/wk, 8:30-5, preferably my home, Coram area. Sue, 698-8611.

BONGOS - Recorder, tambourine, other simple musical instruments. Osgood, Ext. 3978, 286-2561.

PICKUP CAP - For 8' bed Ford truck. Mike, Ext. 4123.

TRUCK OR TRUCK PARTS - For 1965 Ford, F350. 924-4228.

PEOPLE - Interested in experimental & art theatre, "Theatre Games & Merriment," Free, Wed 12/11, 8 pm in the Carriage House, Old South Haven Church, Brookhaven. 286-0542.

2-BEDRM HOUSE IN BELLPORT - For May-Sept or summer rental. 286-0799 after 7 or weekends.

POLAROID COLOR FILM - T88, T108, SX-70, side panel by 12/15. G. Kuzmack, Ext. 4612.

Classified Ad Policy

Deadline is 12 noon Monday for publication Friday of the same week.

1. The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
2. All items for sale or rent must be the advertiser's property.
3. Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
4. Firearms offered for sale or trade may not be brought on site.

5. Ads not carried because of space restrictions will be held for publication in the next issue.
6. Ads are run only once and must be resubmitted if they are to be repeated.
7. Ads should be restricted to 20 words or less and typed or printed on the form provided, and must bear the employees' signature.

<input type="checkbox"/> For Sale: Auto & Auto Supplies	<input type="checkbox"/> Wanted	Check <input type="checkbox"/> the heading applying to your ad. Print or type your ad in 20 words or less.
<input type="checkbox"/> For Sale: Boats & Marine Supplies	<input type="checkbox"/> Carpools	
<input type="checkbox"/> For Sale: Miscellaneous	<input type="checkbox"/> Lost & Found	
	<input type="checkbox"/> Services	

Ads concerning property for sale or rent cannot be accepted on this form. Special Real Estate Ad forms are available at the Office of the Brookhaven Bulletin, Room 111, 40 Brookhaven Avenue.

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(Name & Phone No. To Call)

Employee's Signature..... Life No..... Ext.....

Send to: Brookhaven Bulletin, Building 460, 40 Brookhaven Avenue [Ext. 2345].